

a review of Functional analytic issues in  
Zn<sub>2</sub>-geometry by Bruce, Andrew James; Poncin,  
Norbert

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**Bruce, Andrew James; Poncin, Norbert**

**Functional analytic issues in  $\mathbb{Z}_2^n$ -geometry.** (English) Zbl 07149411

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$\mathbb{Z}_2^n$ -geometry, which this paper is concerned with, was introduced in [*T. Covoilo* et al., J. Math. Phys. 57, No. 7, 073503, 16 p. (2016; [Zbl 1345.58003](#)); J. Geom. Phys. 62, No. 11, 2294–2319 (2012; [Zbl 1308.15023](#))]. The main results of the paper go as follows:

- The structure sheaf of a  $\mathbb{Z}_2^n$ -manifold is a nuclear Fréchet sheaf of  $\mathbb{Z}_2^n$ -graded  $\mathbb{Z}_2^n$ -commutative algebras.
- All  $\mathbb{Z}_2^n$ -morphisms and all  $\mathbb{Z}_2^n$ -differential operators are continuous with respect to the locally convex topology of the structure sheaf, and they are continuous with respect to the  $\mathcal{I}$ -adic topology of the structure sheaf with  $\mathcal{I}$  the kernel of the projection into base functions.

The results in the paper are extensions of similar results in the standard supercase to the more challenging  $\mathbb{Z}_2^n$ -context.

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**MSC:**

[58A50](#) Supermanifolds and graded manifolds

[58C50](#) Analysis on supermanifolds or graded manifolds

[46A04](#) Locally convex Fr

[46S60](#) Functional analysis on superspaces (supermanifolds) or graded spaces

**Keywords:**

$\mathbb{Z}_2^n$ -geometry; nuclear Fréchet sheaves; sheaves of differential operators